



UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,897	09/16/2003	Gail A. Alverson	324758001US3	4520

25096 7590 07/22/2005

PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER

TANG, KENNETH

ART UNIT PAPER NUMBER

2195

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,897

Applicant(s)

ALVERSON ET AL.

Examiner

Kenneth Tang

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-11 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-11 and 13-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This action is in response to the Amendment on 6/24/05. Applicant's arguments have been fully considered but were not found to be persuasive.
2. Claims 1-7, 9-11, and 13-23 are presented for examination.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-7, 9-11, and 13-23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/659407 in view of Hogle et al. (hereinafter Hogle) (US 6,584,489 B1).
4. In claim 1 of copending Application No. 10/659407, it discloses a processor having multiple streams, invoking a function to execute on a stream using instructions and notifying when an operating system call is complete. copending Application No. 10/659407 fails to explicitly state an operating system call that is blocked. However, Hogle teaches an operating system call that is blocked (*col. 1, lines 46-47*). It would have been obvious to one of ordinary

Art Unit: 2195

skill in the art at the time the invention was made to include the feature of blocking operating system calls because this increases the control of thread processing by allowing for threads to wait or resume (*col. 1, lines 22-67*).

5. The above double patenting rejections are of provisional obviousness-type.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-7 and 9-11, 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogle et al. (hereinafter Hogle) (US 6,560,626 B1) in view of Jones et al. (hereinafter Jones) (US 6,584,489 B1).**

7. As to claim 1, Hogle teaches a method in a computer system for returning a stream to a task executing an operating system call that is blocked, the computer system having a processor with multiple streams, the method comprising:

under control of the operating system executing on a stream, invoking a function provided by the task (*col. 1, lines 21-32*);

under control of the invoked function, executing that stream (*col. 1, lines 32-59*); and

under control of the operating system, notifying the task when the operating system call is complete (*col. 5, lines 47-57 and col. 6, lines 15-21*).

Art Unit: 2195

8. Hogle teaches that thread functions are not available during its blocked state (*col. 1, lines 46-47*) *but* fails to explicitly teach returning a stream to a task when an operating system call is blocked. However, Jones teaches task scheduling with returning the requesting thread when it is blocked (*col. 27, lines 10-22*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of returning a stream to a task when an operating system call is blocked because it is desirable to return (or not keep) the threads that are supposed to be blocked.

9. As to claim 2, Hogle teaches wherein the notifying includes invoking a function provided by the task using a stream of the operating system; and

under control of that invoked function, indicating that the operating system call is complete (*col. 6, lines 15-21*); and

invoking another operating system call to return the operating system stream to the operating system (*col. 6, lines 15-21*).

10. As to claim 3, Hogle teaches wherein the executing of instructions on that stream includes indicating that a thread that invoked the operating system call is blocked and executing another thread on that stream (*col. 7, lines 61-65*).

11. As to claims 4-6, they are rejected for the same reasons as stated in the rejection of claims 1-3.

Art Unit: 2195

12. As to claim 7, Hogle teaches a method in a computer system for assigning a processor resource to a thread of a task, the method comprising:

under control of a thread of the task, invoking an operating system call that will block and wait for the occurrence of an event (*col. 1, lines 33-67*); and

under control of the operating system, when the call is blocked, invoking a routine of the task so that the routine can assign the processor resource to another thread of the task (*col. 7, lines 63-65*).

Hogle fails to explicitly teach wherein the processor resource is a stream (resource) of a processor that supports multiple streams. However, Jones teaches wherein the processor resource is a stream of a processor that supports multiple streams (one or more resources for a processor while the processor manages multiple resources) (*col. 5, lines 15-28, col. 22, lines 6-30*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the feature of a stream of a processor that supports multiple streams (one or more resources for a processor while the processor manages multiple resources) to the existing resource system of Hogle because more resources will allow for more memory capacity (or more network bandwidth, or more devices, etc) while having a resource manager to manage the multiple resources/streams (*col. 5, lines 15-28*).

13. As to claim 9, Hogle teaches wherein the task registers the routine with the operating system prior to invoking the operating system call (*col. 1, lines 21-22*).

Art Unit: 2195

14. As to claim 10, Hogle teaches notifying the task when a operating system call completes (*col. 5, lines 47-57 and col. 6, lines 15-21*).

15. As to claim 11, it is rejected for the same reasons as stated in the rejection of claim 7. In addition, Jones teaches wherein the processor resource is a stream of a processor that supports multiple streams (one or more resources for a processor) (*col. 5, lines 15-28, col. 22, lines 6-30*).

16. As to claims 13-14, they are rejected for the same reasons as stated in the rejection of claims 9-10.

17. As to claim 15, it is rejected for the same reasons.as stated in the rejection of claim 1.

18. As to claim 16, Hogleteaches wherein the operating system invokes the first function using the stream that will block (*col. 2, lines 18-30*).

19. As to claim 17, Jones teaches wherein invoking the first function returns the stream to the user program (*col. 27, lines 10-22*).

20. As to claim 18, Hogle teaches wherein the user program selects a thread that is not blocked for execution on the stream (*col. 7, lines 50-65*).

Art Unit: 2195

21. As to claim 19, Jones teaches wherein the second function schedules for restarting a thread that was blocked on the operating system call that was blocked (*col. 6, lines 51-67*).

22. As to claim 20, Jones teaches wherein the second function returns a stream provided by the operating system (*col. 27, lines 10-22*).

23. As to claim 21, it is rejected for the same reasons as stated in the rejection of claims 1 and 7. In addition, Hogle teaches executing the operating system call in a user stream of the user program (*col. 6, lines 22-34*), when a thread making the operating system call is locked, waiting for the operating system call to become unblocked (*col. 1, lines 33-45*), and under control of a trap handler routine, placing the thread in a blocked pool and selecting another thread to execute on the stream (*col. 2, lines 13-30 and col. 7, lines 63-65*).

24. As to claims 22-23, they are rejected for the same reasons as stated in the rejection of claims 19-20.

Response to Arguments

25. During patent examination, the pending claims must be “given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once

Art Unit: 2195

issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

26. Applicant attempts to make it clear that a stream is not a thread, but a stream is a resource of a processor that can be assigned to a task for executing a thread. Hogle doesn't use the term "stream" or any language that could possibly correspond to the "stream". Jones teaches using the term "video stream" but in the video context.

In response, the Examiner pointed out in paragraph 27 of the Response to Arguments in the Final Rejection that Hogle teaches the concept of "stream" by disclosing the concept of a resource. The Examiner never stated that Applicant's "stream" was a thread. Applicant can be his/her own lexicographer, but even though the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claim limitations are given its broadest reasonable interpretation, and the broadest reasonable interpretation of a "stream" is merely a resource. The Examiner has never relied on the literal term of "stream" because the Applicant has created his own definition of the term. Jones also teaches the concept of a "stream" by disclosing the concept of a resource (*see Title*). Jones specifically teaches that a resource (stream) could be CPU time, memory capacity, I/O bus bandwidth, network bandwidth, and devices, such as video frame buffers (video stream, etc.) and sound cards. Therefore, the "video stream" taught in Jones that the Applicant argues about does satisfy as one of the possible resources that can be a stream (*col. 5, lines 15-28*).

27. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., The

Art Unit: 2195

multithreaded architecture (MTA) processor contains a complete set of registers for each stream. An MTA processor can execute a different thread execution in each stream. A task, which can be considered to be an application or a user program, is divided into threads that represent separately schedulable units of the task.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
7/19/05


MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER